Missouri Department of Natural Resources

PUBLIC NOTICE

DRAFT MISSOURI STATE OPERATING PERMIT

DATE: August 27, 2004

In accordance with the state Clean Water Law, Chapter 644, RSMo, Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years, unless noted otherwise in the Public Notice for that discharge.

On the basis of preliminary staff review and the application of applicable standards and regulations, the Missouri Department of Natural Resources (MDNR), as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions. The proposed determinations are tentative pending public comment.

Persons wishing to comment on the proposed permit conditions are invited to submit them in writing to the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, ATTN: Peter Goode, Professional Engineer. Please include the permit number in all comment letters.

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The MDNR may not consider as relevant comments or objections to a permit based on issues outside the authority of the Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be postmarked by September 27, 2004 or received in our office by 5:00 p.m. on September 30, 2004. The requirement of a signed document makes it impossible to accept email comments for consideration at this time. Comments will be considered in the formulation of all final determinations regarding the applications. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at DNR's website, http://www.dnr.state.mo.us/wpscd/wpcp/homewpcp.htm , or at the Department of Natural Resources, Water Protection Program, 205 Jefferson Street, P.O. Box 176, Jefferson City, Missouri 65102, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

Public Notice Date: August 27, 2004
Permit Number: MO-0023043
Kansas City Regional Office

FACILITY NAME AND ADDRESS	NAME AND ADDRESS OF OWNER
St. Joseph Wastewater Treatment Plant 3500 Highway 759 St. Joseph, MO 64504	City of St. Joseph 1100 Frederick Avenue St. Joseph, MO 64501
RECEIVING STREAM & LEGAL DESCRIPTION	**TYPE OF DISCHARGE**
Missouri River, Sec. 30, T57N, R35W, Buchanan County	Domestic, construction/modification

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0023043
Owner:	City of St. Joseph
Address:	1100 Fredrick Avenue, St. Joseph, MO 64501
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	St. Joseph Wastewater Treatment Plant
Address:	3500 Highway 759, St. Joseph, MO 64501
Legal Description:	NE ¼, NE ¼, Sec. 30, T57N, R35W, Buchanan County
Latitude/Longitude:	+39 43 528/-094 51 524
Receiving Stream:	Missouri River (P)
First Classified Stream and ID:	Missouri River (P) (00226)
USGS Basin & Sub-watershed No.:	(10240011-050001)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 – POTW - SIC #4952
Primary clarifier/thermofilic primary digester/activated sludge/aerobic & anaerobic digesters/sludge disposal is by land application or sanitary landfill.
Design population equivalent is 250,000.
Design flow is 27 million gallons per day.
Actual flow is 19 million gallons per day.
Design sludge production is 10,000 dry tons/year.
Actual sludge production is 2,970 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Expiration Date

Jim Hull, Director of Staff, Clean Water Commission

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*			daily	24 hr. total
Temperature	°F			*	daily	grab
Carboneous BOD_5**	mg/L		40	25	daily	24 hr. comp.
Total Suspended Solids**	mg/L		45	30	daily	24 hr. comp.
pH – Units		**		***	daily	grab
Oil & Grease	mg/L	20		15	once/month	grab
Sulfates	mg/L	*		*	once/month	grab
Fecal Coliform	col/100ml	*		*	once/month	grab
E. Coli	col/100ml	*		*	once/month	grab
Chloride	mg/L			*	once/month	grab
Ammonia as N						
(May 1 – Oct 31)	mg/L	67.2		33.5	once/week	grab
(Nov 1 – April 30)		60.6		30.2		
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE _____.						
Arsenic, Total Recoverable	mg/L	0.415		0.132	once/quarter****	grab
Arsenic, Dissolved	mg/L	*		*	once/quarter****	grab
Cadmium, Total Recoverable	mg/L	0.312		0.244	once/quarter****	grab
Cadmium, Dissolved	mg/L	*		*	once/quarter****	grab
Chromium, Total Recoverable	mg/L	0.683		0.166	once/quarter****	grab
Chromium, Dissolved	mg/L	*		*	once/quarter****	grab
Copper, Total Recoverable	mg/L	0.921		0.197	once/quarter****	grab
Copper, Dissolved	mg/L	*		*	once/quarter****	grab
Mercury, Total Recoverable	mg/L	0.015		0.009	once/quarter****	grab
Mercury, Dissolved	mg/L	*		*	once/quarter****	grab
Lead, Total Recoverable	mg/L	0.386		0.386	once/quarter****	grab
Lead, Dissolved	mg/L	*		*	once/quarter****	grab
Zinc, Total Recoverable	mg/L	11.0		1.6	once/quarter****	grab
Zinc, Dissolved	mg/L	*		*	once/quarter****	grab
Nickel, Total Recoverable	mg/L	18.8		18.8	once/quarter****	grab
Nickel, Dissolved	mg/L	*		*	once/quarter****	grab
Cyanide, Amenable to Chlorination	mg/L	0.148		0.085	once/quarter****	grab
Hardness	mg/L	*		*	once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE _____.						
Total Toxic Organics*****			*	*	once/year In July	grab
Total Effluent Toxicity (WET) Test	% Survival	See Special Conditions			once/year in September	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 – In stream monitoring - Immediately upstream						
Dissolved Oxygen	PPM	*			once/quarter****	grab
Temperature	°F	*			once/quarter****	grab
pH	SU	*			once/quarter****	grab
Ammonia as Nitrogen	mg/L				once/quarter****	grab
Arsenic, Total Recoverable	mg/L	*			once/quarter****	grab
Arsenic, Dissolved	mg/L	*			once/quarter****	grab
Cadmium, Total Recoverable	mg/L	*			once/quarter****	grab
Cadmium, Dissolved	mg/L	*			once/quarter****	grab
Chromium, Total Recoverable	mg/L	*			once/quarter****	grab
Chromium, Dissolved	mg/L	*			once/quarter****	grab
Copper, Total Recoverable	mg/L	*			once/quarter****	grab
Copper, Dissolved	mg/L	*			once/quarter****	grab
Mercury, Total Recoverable	mg/L	*			once/quarter****	grab
Mercury, Dissolved	mg/L	*			once/quarter****	grab
Nickel, Total Recoverable	mg/L	*			once/quarter****	grab
Nickel, Dissolved	mg/L	*			once/quarter****	grab
Lead, Total Recoverable	mg/L	*			once/quarter****	grab
Lead, Dissolved	mg/L	*			once/quarter****	grab
Zinc, Total Recoverable	mg/L	*			once/quarter****	grab
Zinc, Dissolved	mg/L	*			once/quarter****	grab
Total Suspended Solids	mg/L	*			once/quarter****	grab
Cyanide, Amenable to Chlorination	mg/L	*			once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 – Instream monitoring – ¼ mile downstream						
Dissolved Oxygen	PPM	*			once/quarter****	grab
Temperature	°F	*			once/quarter****	grab
pH	SU				once/quarter****	grab
Ammonia as Nitrogen	mg/L				once/quarter****	grab
Arsenic, Total Recoverable	mg/L	*			once/quarter****	grab
Arsenic, Dissolved	mg/L	*			once/quarter****	grab
Cadmium, Total Recoverable	mg/L	*			once/quarter****	grab
Cadmium, Dissolved	mg/L	*			once/quarter****	grab
Chromium, Total Recoverable	mg/L	*			once/quarter****	grab
Chromium, Dissolved	mg/L	*			once/quarter****	grab
Copper, Total Recoverable	mg/L	*			once/quarter****	grab
Copper, Dissolved	mg/L	*			once/quarter****	grab
Mercury, Total Recoverable	mg/L	*			once/quarter****	grab
Mercury, Dissolved	mg/L	*			once/quarter****	grab
Nickel, Total Recoverable	mg/L	*			once/quarter****	grab
Nickel, Dissolved	mg/L	*			once/quarter****	grab
Lead, Total Recoverable	mg/L	*			once/quarter****	grab
Lead, Dissolved	mg/L	*			once/quarter****	grab
Zinc, Total Recoverable	mg/L	*			once/quarter****	grab
Zinc, Dissolved	mg/L	*			once/quarter****	grab
Total Suspended Solids	mg/L	*			once/quarter****	grab
Cyanide, Amenable to Chlorination	mg/L	*			once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002 – Emergency discharge from lagoon or irrigation sites (Note 2)						
Flow	MGD	*			once/day******	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L	65			once/week******	grab
Total Suspended Solids	mg/L	1			once/week******	grab
Ammonia Nitrogen as N	mg/L				once/week******	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE _____.						
Outfall #002 – Land Application Site Monitoring (Notes 3 & 4)						
Lagoon Freeboard	feet	*			once/month	measured
Irrigation period	hours	*			daily	total
Volume Irrigated	gallons	*			daily	total
Application Area	acres	*			daily	total
Application Rate	inches/ acre	*			daily	total
Rainfall	inches	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE _____.						
Outfall #002 – Irrigated Wastewater (Notes 5 & 6)						
Total Kjeldahl Nitrogen as N	mg/L	*			once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE_____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** This facility is required to meet a removal efficiency of 85% or more.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.
**** Sample once per quarter in the months of January, April, July, and October.
***** List of Total Toxic Organics to be performed once/year. (See Note 1)
****** Monitor only when discharge occurs. Report as no-discharge when a discharge does not occur during the report period.

Note 1 - Total Toxic Organics

Acenaphthene
Acrolein
Acrylonitrile
Benzene
Benzidine
Carbon Tetrachloride (tetrachloromethane)
Chlorobenzene
1,2,4-trichlorobenzene
Hexachlorobenzene
1,2-dichloroethane
1,1,1-trichloroethane
Hexachloroethane
1,1-dichloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloroethane
Chloroethane
Bis (2-chloroethyl) ether
2-chloroethyl vinyl ether
N-nitrosodi-n-propylamine
Pentachlorophenol
Phenol
Bis (2-ethylhexyl) phthalate
Butyl benzyl phthalate
(dibenzo(a,h)anthracene)
Di-n-butyl phthalate

Di-n-octyl phthalate
Diethyl phthalate
Dimethyl phthalate
1,2-benzanthracene (benzo(a)anthracene)
Benzo(a)pyrene (3,4-benzopyrene)
3,4-benzofluoranthene (benzo(b)fluoranthene)
11,12-benzofluoranthene (benzo(k)fluoranthene)
Chrysene
metabolites)
Anthracene
1,12-benzoperylene (benzo(ghi)perylene)
Fluorene
2-chloronaphthalene
2,4,6-trichlorophenol
Parachlorometa cresol
Chloroform (trichloromethane)
2-chlorophenol
1,2-dichlorobenzene
1,3-dichlorobenzene
hexachlorocyclohexane)
1,4-dichorobenzene
3,3-dichlorobenzidine
1,1-dichloroethylene
1,2-trans-dichloroethylene
2,4-dichlorophenol
1,2-dichloropropane (1,3-dichloropropane)
2,4-dimethylphenol
2,4-dinitrotoluene
2,6-dinitrotoluene
1,2-diphenylhydrazine
Ethylbenzene
Fluoranthene

4-chlorophenyl phenyl ether
4-bromophenyl phenyl ether
Bis (2-chloroisopropyl) ether
Bis (2-chloroethoxy) methane
Methylene Chloride (dichloromethane)
Methyl Chloride (chloromethane)
Methyl bromide (bromomethane)
Bromoform (tribromomethane)
Dichlorobromomethane
Chlorodibromomethane
Hexachlorobutadiene
Hexachlorocyclopentadiene
Isophorone
Naphthalene
Nitrobenzene
2-nitrophenol
4-nitrophenol
2,4-dinitrophenol
4,6-dintro-o-cresol
N-nitrosodimethylamine
N-nitrosodiphenylamine
Phenanthrene
1,2,5,6-dibenzanthracene

Indeno (1,2,3-cd) pyrene
(2,3-o-phenylene pyrene)
Pyrene
Tetrachloroethylene
Toluene
Trichloroethylene
Vinyl Chloride (chloroethylene)
Aldrin
Dieldrin
Chlordane (technical mixture and

4,4-DDT
4,4-DDE (p,p-DDX)
4,4-DDD (p,p-TDE)
Alpha-endosulfan
Beta-endosulfan
Endosulfan sulfate
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide (BHC

Alpha-BHC
Beta-BHC
Gamma-BHC
Delta-BHC (PCB polychlorinated biphenyls)
PCB-1242 (Arochlor 1242)
PCB-1254 (Arochlor 1254)
PCB-1221 (Arochlor 1221)
PCB-1232 (Arochlor 1232)
PCB-1248 (Arochlor 1248)
PCB-1260 (Arochlor 1260)
PCB-1016 (Arochlor 1016)
Toxaphene

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 2 – No-discharge facility requirements. Wastewater shall be stored and land applied during suitable conditions so that there is no-discharge from the lagoon or irrigation site. An emergency discharge may occur when excess wastewater has accumulated above feasible irrigation rates due to precipitation exceeding the 1-in-10-year, 365-day rainfall or the 25-year, 24-hour storm event.

Note 3 – Records shall be maintained and summarized into an annual operating report, which shall be submitted by January 28th of each year for the previous calendar year period. The report shall include the following.

a. Record of maintenance and repairs performed on the year, average number of times per month the facility is checked to see it is operating properly, and description of any unusual operating conditions encountered during the year;
b. The number of days the lagoon has discharged during the year, the discharge flow, the reasons discharge occurred, and effluent analysis performed; and
c. A summary of the irrigation operations including freeboard at the start and end of the irrigation season, the number of days of irrigation for each month, the total gallons irrigated, the total area irrigated, crops grown, crop yields per acres, the application rate in inches/acre per day and for the year, the monthly and annual precipitation recorded at the facility and summary of testing results.

Note 4 – Lagoon freeboard shall be reported as lagoon water level in feet below the overflow level. See Special Conditions for Wastewater Irrigation System requirements.

Note 5 – Wastewater that is irrigated shall be sampled at the irrigation pump or wet well.

Note 6 – Monitor once per month during the months of March through November (9 months/year).

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

C. SPECIAL CONDITIONS (continued)

4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:
(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
    (1) One hundred micrograms per liter (100 µg/L);
    (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
    (4) The level established by the permit by the Director.
(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

6. Water Quality Standards
(a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
(b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

    (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
    (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
    (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
    (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
    (5) There shall be no significant human health hazard from incidental contact with the water;
    (6) There shall be no acute toxicity to livestock or wildlife watering;
    (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
    (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
(a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.

C. SPECIAL CONDITIONS (continued)

(b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

8. Lagoons and earthen basins shall have a liner that is designed, constructed, and maintained. If operating records indicate excessive percolation, the department may require corrective action as necessary to eliminate excess leakage.

9. Annual Report
An annual report for Outfall #002 is required in addition to the listed reporting under Section A of the permit. The annual report shall be submitted by January 28 of each year for the previous growing season from October through September 30 or an alternate 12 month period approved by the Department and listed in the Operation and Maintenance Manual. This report shall be submitted using report forms approved by the Department and shall include a summary of the monitoring and recordkeeping required by the Special Conditions and Standard Conditions of this permit.

10. Wastewater Irrigation Requirements

a. Discharge Reporting. Any unauthorized discharge from the lagoon or irrigation system shall be reported to the department as soon as possible but always within 24 hours. Discharge is allowed only described in the Facility Description and Effluent Limitations sections of this permit.
b. Lagoon Operating Levels-No-discharge Systems. The minimum and maximum operating water levels for the storage lagoon shall be clearly marked. Each lagoon shall be operated so that the maximum water elevation does not exceed one foot below the overflow point except due to exceedances of the 1-in-10 year or 25-year, 24-hour storm events. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage lagoon(s) shall be lowered to the minimum operating level prior to each winter by November 30.
c. Emergency Spillway. Lagoons and earthen basins should have an emergency spillway to protect the structural integrity of earthen structures during operation at near full water levels and in the event of overflow conditions. The spillway shall be at least one foot below the top of berm. The department may waive the requirement for overflow structures on small existing basins.
d. General Irrigation Requirements. The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. A complete ground cover of vegetation shall be maintained on the irrigation site unless the system is approved for row crop irrigation. Wastewater shall be land applied only during the daylight hours. The wastewater irrigation system shall be capable of irrigation the annual design flow during an application period of less than 100 days or 800 hours per year.
e. Saturated/Frozen Conditions. There shall be no irrigation during frozen, snow covered, or saturated soil conditions.
f. Buffer Zones. There shall be no irrigation within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwelling; or 50 feet of the property line.
g. Public Access Restrictions. Public access shall not be allowed to the irrigation site(s).

C. SPECIAL CONDITIONS (continued)

h. Operation and Maintenance Manual. The permittee shall develop, maintain, and implement an Operation and Maintenance (O&M) Manual that includes all necessary items to ensure the operation and integrity of the waste handling and land application systems. Copies of the O&M Manual and subsequent revision shall be submitted to the department's Water Protection Program and Regional Office for review and approval. The O&M Manual shall be reviewed and updated at least every five years.

11. Combined Sewer Overflow

The permittee shall immediately implement the Nine (9) Minimum Controls contained in the Combined Sewer Overflow Management Plan previously approved by the department. In addition, the permittee shall meet the following schedule to conform with the Federal Combined Sewer Overflow (CSO) Control Policy:

1. Permittee shall submit annual report on January 31 of each year on the previous year's efforts to implement the nine (9) Minimum Controls, or the Long Term CSO Control Plan as approved.
2. The permittee is authorized to discharge from the CSO outfalls previously identified in the approved management plan and additional CSO outfalls, within the boundaries of the permittee's jurisdiction, identified after the effective date of the permit that are in conformance with the above schedule and Federal CSO Policy dated Tuesday, April 19, 1994.

12. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	13%	Annually	24 hr. composite	September

a. Test Schedule and Follow-Up Requirements

(1) Perform a single-dilution test in the months and at the frequency specified above

If the test passes the effluent limit, do not repeat test until the next test period. Submit results with the annual report.

If the test fails the effluent limit a multiple dilution test shall be performed within 30 days, and biweekly thereafter until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until the next regularly scheduled test period.
(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

C. SPECIAL CONDITIONS (continued)

12. Whole Effluent Toxicity (WET) tests (continued)

a. Test Schedule and Follow-Up Requirements (continued)

(2) The permittee shall submit a summary of all test results for the test series to the Water Quality Monitoring and Assessment Section of the WPP, Box 176, Jefferson City, MO within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Water Quality Monitoring and Assessment Section of the WPP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(4) If a previously completed TIE has adequately identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain substantially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in part b.(1) will be required during this period.

(5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 day of the availability of results.

(6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

b. PASS/FAIL procedure and effluent limitations

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p=0.05) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,
(b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is considered an effluent limit violation.

c. Test Conditions

(1) Test species: Ceriodaphnia dubia and fathead minnows, Pimephales promelas. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

C. SPECIAL CONDITIONS (continued)

12. Whole Effluent Toxicity (WET) tests (continued)

(2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(3) When dilutions are required, upstream receiving stream water will be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).

(4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.

(5) Single-dilution tests will be run with:

(a) Effluent at the AEC concentration;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(6) Multiple-dilution tests will be run with:

(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, ½ the AEC, and ¼ the AEC.
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

13. As required in 40 CFR 122.21(j)(4) the permittee shall, as part of its renewal application for this permit, submit to the department a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1).

14. All outfalls must be clearly marked in the field.

15. Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.

16. Permittee shall submit to the Department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:

(a) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;

C. SPECIAL CONDITIONS (continued)

(b) A summary of the status of Industrial User compliance over the reporting period;

(c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and

(d) Any other relevant information requested by the Department.

17. This permit will be public noticed again upon completion of construction and prior to issuance of a modified operating permit for the upgraded facility. That public notice will reflect a recalculation of the ammonia limitations included in this draft, to reflect new ammonia criteria currently being adopted by the Missouri Clean Water Commission. The adoption of new criteria by the state allows for the relaxation of a previously proposed chronic effluent limitation if the revised effluent limitations are based on the new standard. Provisions in 40 CFR 122.44(1) (sometimes referred to as "anti-backsliding" policy) authorize this procedure.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (mini
Feeding regime:	N (fee rior to test)
Aeration:	
Dilution water:	eceiving water; if no upstream f synthetic water modified to reflect e uent hardness.
Endpoint:	ortality (Statistically significant difference from upstream receiving water control at p≤ 0.05)
Test acceptability ter :	90% or greater survival in controls

Test conditions for (Pimep les promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at p≤ 0.05)
Test Acceptability criterion:	90% or greater survival in controls

Date of Fact Sheet: August 23, 2004

Date of Public Notice: August 27, 2004

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
FACT SHEET

This Fact Sheet explains the applicable regulations, rationale for development of this permit and the public participation process.

NPDES PERMIT NUMBER: MO-0023043

FACILITY NAME: St. Joseph Wastewater Treatment Plant

OWNER NAME: City of St. Joseph

LOCATION: Sec. 30, T57N, R35W County: Buchanan

RECEIVING STREAM: Missouri River

FACILITY CONTACT PERSON: Donald Gilpin TELEPHONE: (816) 271-4693

FACILITY DESCRIPTION AND RATIONALE

The City of St. Joseph has applied for a construction permit to upgrade the existing activated sludge wastewater treatment plant by:

1. Installation of a new, dedicated industrial primary clarifier, which will provide primary treatment for the flow received directly from the new pork processing plant, Prime Tanning, and the wastewater pumped from the South St. Joseph Industrial District pump station;
2. Construction of a new thermophilic primary digester to allow the City of St. Joseph to produce Class A biosolids;
3. Rehabilitation and repair work on the existing dissolved air flotation equipment, and;
4. Modifications to the existing process piping to improve existing final clarifiers and aeration basin flexibility and reliability.

The wastewater plant's design flow will remain 27 million gallons per day (MGD) with an anticipated actual flow of 19 MGD.

The effluent limitations and rationale are explained in the attached Water Quality Review Sheet.

This permit will be issued for a period of five years.

Missouri Department of Natural Resources
Water Protection Program
Water Pollution Control Branch
NPDES Permits & Engineering Section

Water Quality Review Sheet

Determination of Effluent Limits

Facility Information

FACILITY NAME: City of St. Joseph WWTP

NPDES #: MO-0023043

FACILITY TYPE/DESCRIPTION: Upgrade of secondary system to serve a new industrial customer (Premium Pork, LLC). Design Flow = 27 MGD

ECOREGION: Central Irregular Plains (Central Irregular Plains, Mississippi Alluvial Plains, Osage Plains, Ozark Highlands)

8- DIGIT HUC: 10240011

COUNTY: Buchanan

LEGAL DESCRIPTION: NE NE Sec.30, T57N, R35W

LATITUDE/LONGITUDE: +3943528/-09451524

WATER QUALITY HISTORY: Effluent violations for As, Cd, Cr, Cu, Hg, Ni, Pb, and Zn occurred in January 2004.

Outfall Characteristics

OUTFALL	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY	OTHER
001	41.9	Activated Sludge/ Anaerobic Digester	Missouri River	
002	None	No Discharge	Missouri River	

Receiving Waterbody Information

WATERBODY	CLASS	7Q10 (CFS)	*DESIGNATED USES	OTHER CHARACTERISTICS
Missouri River	P	11,226**	IRR, LWW, AQL, BTG, DWS, IND	WBID: 0226

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warmwater Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

** Details of 7Q10 calculation can be found under "Mixing Considerations"

COMMENTS: Updated WQRS and associated water quality based effluent limits (WQBELs) developed to ensure the proposed industrial loading to the St. Joseph WWTP does not cause violations of water quality standards in the Missouri River. Effluent limitations and monitoring requirements for Outfall #002 should remain the same as the current permit.

MIXING CONSIDERATIONS

7Q10 Calculation: USGS stream gauge data were used to calculate the seven (7)-day one (1)-in-ten (10)-year low flow (7Q10) for the Missouri River at St. Joseph, Missouri. The 7Q10 of a stream is the average minimum flow for seven (7) consecutive days that has a probable recurrence interval of once-in-ten (10) years.

Given the regulated nature of streamflow in the Missouri River, staff from the department's Geological Survey and Resource Assessment Division (GSRAD) were consulted to determine an appropriate period of record upon which to base the 7Q10 calculation. Upon recommendation from GSRAD staff, daily streamflow data for the Missouri River at St. Joseph, MO (USGS-06818000) from 10/1/64 to 9/30/03 were used to generate annual 7-day low-flow values using the USGS SWSTAT 4.1 surface water statistics program. The resulting 7-day low-flows were fitted using the Log-Pearson Type III frequency distribution. A 7Q10 value of 11,226 cubic feet/second (cfs) was determined from this analysis (Appendix A.)

Mixing Zone (MZ). One-quarter (1/4) of the stream volume of flow; length one-quarter (1/4) mile [10 CSR 20-7.031(4)(A)5.B.(III)(a)]. MZ Volume of Flow = 2806.5 cfs, Dilution Factor = 68.0:1

Zone of Initial Dilution (ZID). One-tenth (0.1) of the mixing zone volume of flow [10 CSR 20-7.031(4)(A)5.B.(III)(b)]. ZID Volume of Flow = 280.7 cfs, Dilution Factor = 7.70:1

Permit Limits And Information

TMDL Watershed: (Y or N) [N] W.L.A. Study Conducted: (Y or N) [N] Disinfection Required: (Y or N) [N] Disinfection Waiver: (Y, N, NA) [NA]

OUTFALL# 001

Wet Test (Y or N): [Y] Frequency: Once/year A.E.C. 13% Limit: No significant mortality

PARAMETER	Units	Maximum Daily Limit	Weekly Average Limit	Average Monthly Limit	Monitoring Frequency	Sample type
Carbonaceous Biochemical Oxygen Demand (CBOD)	mg/L		40	25	Daily	24hr comp.
Total Suspended Solids	mg/L		45	30	Daily	24hr comp.
pH	SU	6 - 9		6 - 9	Daily	grab
Ammonia as N (May 1 - Oct 31)	mg/L	67.2		33.5	Once/Week	grab
Ammonia as N (Nov 1 - Apr 30)	mg/L	60.6		30.2	Once/Week	grab
Oil & Grease	mg/L	20		15	Once/Month	grab
As, Total Recoverable	mg/L	0.415		0.132	Once/Quarter	grab
As, Dissolved	mg/L	*		*	Once/Quarter	grab
Cd, Total Recoverable	mg/L	0.312		0.244	Once/Quarter	grab
Cd, Dissolved	mg/L	*		*	Once/Quarter	grab
Cr, Total Recoverable	mg/L	0.683		0.166	Once/Quarter	grab
Cr, Dissolved	mg/L	*		*	Once/Quarter	grab
Cu, Total Recoverable	mg/L	0.921		0.197	Once/Quarter	grab
Cu, Dissolved	mg/L	*		*	Once/Quarter	grab

Hg, Total Recoverable	MG/L	0.015		0.009	Once/Quarter	grab
Hg, Dissolved	MG/L	*		*	Once/Quarter	grab
Ni, Total Recoverable	MG/L	18.8		18.8	Once/Quarter	grab
Ni, Dissolved	MG/L	*		*	Once/Quarter	grab
Pb, Total Recoverable	MG/L	0.386		0.386	Once/Quarter	grab
Pb, Dissolved	MG/L	*		*	Once/Quarter	grab
Zn, Total Recoverable	MG/L	11.0		1.6	Once/Quarter	grab
Zn, Dissolved	MG/L	*		*	Once/Quarter	grab
Cyanide, Amenable to Chlorination	MG/L	0.148		0.085	Once/Quarter	grab
HARDNESS	MG/L	*		*	Once/Quarter	grab
SULFATE (SO_4)	MG/L	*		*	ONCE/MONTH	grab
CHLORIDE	MG/L	*		*	ONCE/MONTH	grab
TOTAL TOXIC ORGANICS		*		*	Once/Year	grab
FECAL COLIFORM	Note 1	*		*	Once/Month	grab
E. COLI	Note 1	*		*	Once/Month	grab

*** - MONITORING REQUIREMENT ONLY**

Note 1: Units for Fecal Coliform and E. Coli monitoring colonies/100 mL.

Receiving Water Monitoring Requirements

Site S1.

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Dissolved Oxygen	Once/quarter	Grab	Immediately upstream of outfall
Temperature	Once/quarter	Grab	
pH	Once/quarter	Grab	
Ammonia as Nitrogen	Once/quarter	Grab	
Metals, Total Recoverable*	Once/quarter	Grab	
Metals, Dissolved*	Once/quarter	Grab	
Total Suspended Solids	Once/quarter	Grab	
Cyanide, Amenable to Chlorination	Once/quarter	Grab	
Hardness	Once/quarter	Grab	

Site S2.

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Dissolved Oxygen	Once/quarter	Grab	One-quarter (¼) mile downstream of outfall
Temperature	Once/quarter	Grab	
pH	Once/quarter	Grab	
Ammonia as Nitrogen	Once/quarter	Grab	
Metals, Total Recoverable*	Once/quarter	Grab	
Metals, Dissolved*	Once/quarter	Grab	
Total Suspended Solids	Once/quarter	Grab	
Cyanide, Amenable to Chlorination	Once/quarter	Grab	
Hardness	Once/quarter	Grab	

*Total Recoverable and Dissolved Metals (As, Cd, Cr, Cu, Hg, Ni, Pb, and Zn)

Derivation and Discussion of Limits

Wasteload allocations were calculated using water quality criteria and the dilution equation below:

$$C = \frac{(C_s * Q_s) + (C_e * Q_e)}{(Q_e + Q_s)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
C_s = upstream concentration
Q_s = upstream flow (cfs)
C_e = effluent concentration

Q_e = effluent flow (cfs)

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable acute water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

- **Carbonaceous Biochemical Oxygen Demand (CBOD)**. Same as current permit.

- **Total Suspended Solids (TSS)**. Same as current permit.

- **pH**. Same as current permit.

- **Ammonia as Nitrogen**. Ammonia criteria for waters designated as general warm-water fisheries in Missouri's Water Quality Standards apply [10 CSR 20-7.031, Table B]. Background ammonia as nitrogen for the Missouri River at St. Joseph, MO = 0.1 mg/L. Seasonal temperature and pH data obtained from water quality monitoring station USGS-06818000.

Season	Temp (°C)	pH (SU)	Total Ammonia CCC (mg/L)	Total Ammonia CMC (mg/L)
Summer	22	8.2	0.8	6.9
Winter	5	8.1	1.2	9.6

Summer: May 1 – October 31, Winter: November 1 – April 30

$C_e = ((Q_e + Q_s)C - (Q_s * C_s))/Q_e$

Summer

Ammonia as Nitrogen CCC = 0.8/1.2 = 0.7 mg/L
Ammonia as Nitrogen CMC = 6.9/1.2 = 5.8 mg/L

Chronic WLA: $C_e = ((41.9 + 2806.5)0.7 - (2806.5 * 0.1))/41.9$
C_e = 40.9 mg/L

Acute WLA: $C_e = ((41.9 + 280.7)5.8 - (280.7 * 0.1))/41.9$
C_e = 44.0 mg/L

LTA_c = 40.9 mg/L (0.527) = 21.6 [CV = 0.6, 99th Percentile]

MDL = 21.6 * 3.11 = 67.2 mg/L [CV = 0.6, 99th Percentile]
AML = 21.6 * 1.55 = 33.5 mg/L [CV = 0.6, 95th Percentile, n = 4]

Winter

Ammonia as Nitrogen CCC = 1.2/1.2 = 1.0 mg/L
Ammonia as Nitrogen CMC = 9.6/1.2 = 8.0 mg/L

Chronic WLA: $C_e = ((41.9 + 2806.5)1.0 - (2806.5 * 0.1))/41.9$

C_e = 61.3 mg/L

Acute WLA: C_e = ((41.9 + 280.7)8.0 – (280.7 * 0.1))/41.9

C_e = 60.9 mg/L

LTA_a = 60.9 mg/L (0.321) = 19.5 [CV = 0.6, 99th Percentile]

MDL = 19.5 * 3.11 = 60.6 mg/L [CV = 0.6, 99th Percentile]
AML = 19.5 * 1.55 = 30.2 mg/L [CV = 0.6, 95th Percentile, n = 4]

Season	Maximum Daily Limit (mg/L)	Average Monthly Limit (mg/L)
Summer	67.2	33.5
Winter	60.6	30.2

- **Oil & Grease**. Same as current permit.

- **Metals**. Effluent limitations for total recoverable metals (As, Cd, Cr, Cu, Hg, Ni, Pb, and Zn) same as current permit. Monitoring only requirement for dissolved metals and hardness added so that appropriate effluent limits can be calculated upon permit renewal using USEPA recommended metals translator methodology (EPA 823-B-96-007).

- **Cyanide, Amenable to Chlorination**. Same as current permit.

- **Bacteria**. Pending approval by the Missouri Clean Water Commission, all classified waters in Missouri shall be designated for Whole Body Contact Recreation. Operating permits issued following this rule will require disinfection unless the facility conducts a Use Attainability Analysis (UAA) and is approved by USEPA and Missouri DNR. The monitoring only requirements for fecal coliform and E. Coli have been added in anticipation of this action and promulgation of an E. Coli water quality standard by the commission.

Reviewer: John Hoke
Date: 4/20/04
Unit Chief: Richard J. Laux

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.

Appendix A.

Log-Pearson Type III Statistics
SWSTAT 4.1
(based on USGS Program A193)

Notice -- Use of Log-Pearson Type III or Pearson-Type III distributions are for preliminary computations. User is responsible for assessment and interpretation.

USGS-06818000 Missouri River at St. Joseph, MO
April 1 - start of season
March 31 - end of season
1966 - 2003 - time period
7-day low - parameter
38 - non-zero values
0 - zero values
0 - negative values (ignored)

8937.143	11328.571	9542.857	14114.286	14285.714
10000.000	19502.857	19985.715	24000.000	20485.715
23485.715	15857.143	18414.285	21000.000	25900.000
16342.857	12185.714	40671.430	21500.000	31657.143
25214.285	37814.285	21057.143	11895.714	8894.286
10567.143	16814.285	23771.428	28671.428	24971.428
29757.143	33000.000	33085.715	37928.570	30171.428
18428.572	20314.285	17900.000		

The following 7 statistics are based on non-zero values:

Mean (logs)	4.292
Variance (logs)	0.034
Standard Deviation (logs)	0.185
Skewness (logs)	-0.265
Standard Error of Skewness (logs)	0.383
Serial Correlation Coefficient (logs)	0.594
Coefficient of Variation (logs)	0.043

Non-exceedance Probability	Recurrence Interval	Parameter Value
0.0100	100.00	6699.372
0.0200	50.00	7697.534
0.0500	20.00	9427.757
0.1000	10.00	11226.313
0.2000	5.00	13773.907
0.3333	3.00	16530.938
0.5000	2.00	19951.340
0.8000	1.25	28141.270
0.9000	1.11	33337.973
0.9600	1.04	39637.207
0.9800	1.02	44143.711
0.9900	1.01	48500.922